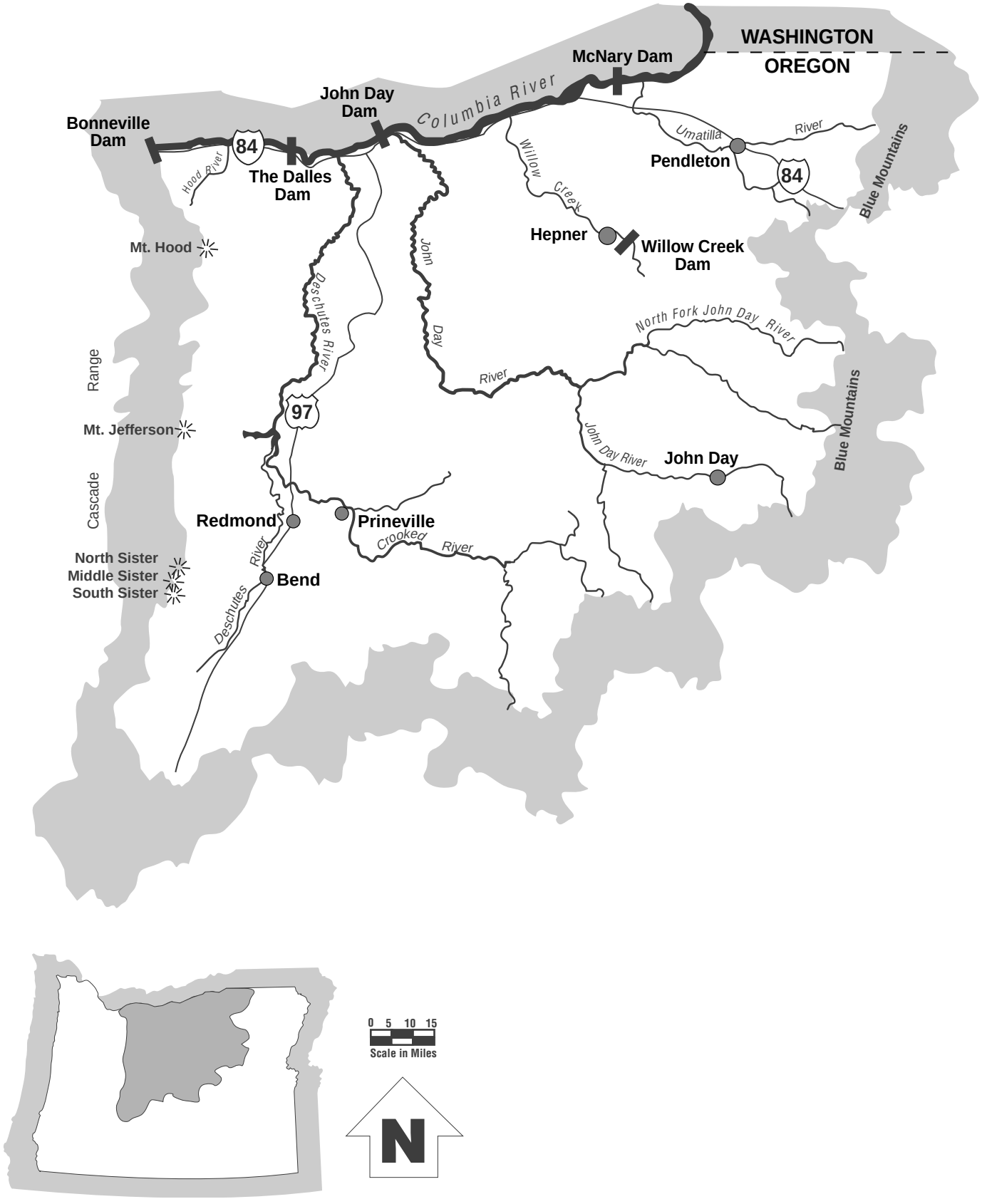
Middle Columbia River Basin



Middle Columbia River Basin

The Middle Columbia River Basin includes the 160-mile stretch of the Columbia River from Bonneville Dam to Lake Wallula behind McNary Dam, and the Oregon river basins tributary to this stretch of the Columbia. All of the basin is in the Corps' Portland District, except for the extreme northeast portion which is in the Walla Walla District.

The Middle Columbia River Basin in Oregon has an area of 24,100 square miles. Important Oregon tributaries of the Columbia include the Umatilla, John Day, Deschutes and Hood rivers. The headwaters of the Walla Walla River, which enters the Columbia in Washington, are in Oregon in the northeast corner of the Middle Columbia River Basin (see map). Where the Columbia enters the basin, its average flow is about 185,200 cubic feet per second (cfs). At Bonneville Dam, where it leaves the basin, its average flow is about 198,000 cfs.

In most of the Columbia River Basin, the climate and vegetation are typical of a semi-arid region. At the extreme western edge, along the Cascade Range and in the Columbia River Gorge, there are evergreen forests and a rainy climate. The Blue Mountains in the headwaters of the John Day, Umatilla and Walla Walla rivers are also forested, but receive less rainfall than the Cascade Range at similar elevations.

The Middle Columbia River Basin has mile after mile of open country, with population centers widely scattered. The only Oregon cities in the basin over 10,000 population are Pendleton, Bend and The Dalles.

Four large dams on the Columbia River and one on Willow Creek at Heppner have been constructed and are operated by the Corps of Engineers. Bonneville, The Dalles, John Day and McNary dams generate power and provide slack water and lockage for river navigation. In addition, John Day Dam provides about a half-million acre-feet of storage space for control of Columbia River floods. Also constructed as part of the reservoir projects were levees to protect adjacent lands from overflow and shoreline revetments to protect against wave damage. McNary Dam is operated by the Walla Walla District, and Bonneville, The Dalles, John Day and Willow Creek by the Portland District.

Columbia River Juvenile Fish Mitigation Program, Oregon and Washington

This program encompasses Bonneville, The Dalles and John Day dams on the Columbia River, in addition to five other locations within the Walla Walla District. The eight Corps hydroelectric projects on the Columbia and Snake rivers have been identified as a contributing factor in causing mortality to downstream migrating juvenile salmon and steelhead, which adversely impacts commercial, recreational and Indian fisheries. Measures to reduce juvenile fish mortality which include mechanized bypass systems with barge and truck transportation have been undertaken by the Corps.

Through the Energy and Water Development Appropriations Act of 1989 (PL 100-371), Congress

authorized the design, testing, and construction of new or improved fish bypass facilities for the Columbia River Juvenile Fish Mitigation projects. The bypass and transportation facilities will significantly increase the survival of migrating downstream juvenile salmon and steelhead trout. The current fully funded total estimated federal project cost is $587,900,000, which includes $316,500,000 for improvements in Walla Walla District and $267,100,000 for Portland District. An additional $4,300,000 is provided by the Bonneville Power Administration for design of the Bonneville juvenile fish monitoring facility. A mitigation study will determine the overall scope of the fish mitigation facilities for the dams. At Bonneville, planned improvements will include new juvenile fish monitoring facilities and outfall relocation. At The Dalles, planned enhancements are for submerged extended fish screens and a bypass system, a new gantry crane, and a maintenance facility. At John Day, the fish mitigation project improvements include a new juvenile fish monitoring facility, and planning and design for potential drawdown of the reservoir to minimum operating pool.

Multipurpose Development

Existing Projects

Bonneville Lock and Dam (Lake Bonneville)

Bonneville Dam, the first dam built by the Corps of Engineers on the Columbia River, is at the limit of tidal influence about 145 miles upstream from the mouth of the river and 40 miles east of Portland. The authorized primary project purposes are navigation and power generation. The project includes a spillway, two powerhouses, a navigation lock, fish-passage facilities and visitor centers. The navigation lock and powerhouses are founded on andesite, whereas the main dam rests on a solidified sedimentary rock of volcanic origin. The lake created by the dam provides a navigable channel 27 feet deep between Bonneville and The Dalles dams, a distance of 47 river miles.

Navigation. The original lock at Bonneville Dam was the smallest of eight locks on the Columbia-Snake Inland Waterway. Completed in January 1938, it was the first of eight locks constructed on the waterway. The original single-lift navigation lock was 76 feet wide, 500 feet long, had a depth over the sill of 24 feet and a 66 foot maximum lift. To pass through the original lock at Bonneville, tows with three or more standard sized barges (42 feet by 220 feet) had to be separated and passed through the locks in smaller units, then recombined to continue on their way. This resulted in a transit time at Bonneville which was two or three times greater than transit times at the larger upstream locks. Bonneville, the farthest downstream of the 8-lock system, handled the largest volume of commercial tonnage of all the locks in the system. The capacity of the Bonneville original lock was estimated at 13 million tons per year. Congestion delays were increasing and the waterway capacity was being constrained as the waterborne commerce through the lock neared its capacity.

Construction of a new navigation lock was authorized in the FY 1985 Supplemental Appropriations Act. In accordance with the Water Resources Development Act of 1986, the Inland Waterways Trust Fund shared 50 percent of the project cost. Relocation of the Union Pacific railroad, required prior to lock construction, was completed in 1987. Construction of a new navigation lock at Bonneville began in the summer of 1987 and opened to traffic in May 1993. The new lock is located south of the original lock on the Oregon shore.

The new navigation lock at Bonneville is 86 feet wide and 675 feet long and 19 feet deep over the sill, corresponding to the seven locks upriver. Construction of the new lock with a capacity of 30 million tons per year was

needed to reduce delays for commercial navigation at Bonneville and to improve hazardous conditions at the lock approaches. Waterborne commerce through the lock in 1994 was 10,260,340 tons. The cost of the new navigation lock was $348 million (1994).

Power Generation. Construction was started in 1933 and operation of the first powerhouse at Bonneville began in 1938. During World War II, the first powerhouse was enlarged and additional generators were installed. Construction for the second powerhouse started in 1974 on the Washington side of the Columbia River at the former site of the town of North Bonneville, which had been relocated about a mile-and-a-half downstream.

Construction of a new townsite and municipal facilities for North Bonneville was essentially complete in October 1977. Corps and town officials exchanged deeds in March 1978, giving the town possession of municipal facilities and utilities in the new town. Other work completed in the early stages of the powerhouse project included relocation of about four miles of Washington Highway 14 and three miles of the Burlington Northern railroad.

Modifications to allow use of Lake Bonneville to smooth out water released from upstream powerplants during the production of peaking power were completed in 1978. The total cost of modifications for peaking – including structural changes and fish facility modifications – was $27,195,000.

While powerhouse construction was in progress, a significant archeological site was excavated in an area now in the middle of the new river channel downstream of the second powerhouse. This was the only known, relatively undisturbed site along the lower Columbia River with evidence of a sequence of occupation from prehistoric through historic times. The archeological site, which is identified by the Native Americans as "Clah-Cleh-Lah" in the Sahaptian language, was assigned a Smithsonian number, 45SA11. The site was first noted in the journals of explorers Lewis and Clark and has been listed as a contributing property to the North Bonneville Archaeological District on the National Register of Historic Places. Evidence at the site spans about 500 years, from the time of Native American occupation to the early European settlements in the mid-1800s. Excavation and analysis of the archeological site was completed in the summer of 1979 at a cost of $1.2 million. The collection has been accessioned and curated with the Yakama Nation Cultural Heritage Center Museum. It is currently used for scientific research and public information and education.

Other contributing properties within the North Bonneville Archaeological District include 45SA5, or the Caples Site, a pit house village and midden site which predates the 45SA11 property. At least seven other historic and prehistoric sites are included within the North Bonneville Archeological District, and these range from pioneer-military historic properties to small, prehistoric task/fishing sites.

Project lands two miles downstream, covered by material excavated for the powerhouse construction, have been restored for public use. Development of a recreation

facility essentially completed at Home Valley, 10 miles upstream, is being cost-shared with Skamania County.

The second powerhouse adds 560,000 kilowatts of generating capacity with eight main units, slightly more than doubling the project's previous capacity. Power from the second powerhouse came on line in May 1981 and power from all eight units was on line by October 1982. The second powerhouse, essentially completed in 1983, joins Cascades Island and the Washington shore. The second powerhouse was dedicated June 1, 1983, with Senator Henry M. Jackson of Washington and Senator Mark O. Hatfield of Oregon as principal speakers.

The two powerhouses have a total generating capacity of 1,084,900 kilowatts, with 18 main generating units and three smaller auxiliary units. During 1994, total generation was four billion kilowatt-hours of power. Power revenues in fiscal year 1994 were $45,208,100. Since the project began operating in 1938, revenues of $557,192,235 from the sale of electricity have been deposited in the U.S. Treasury.

Through September 1994, the total cost of the Bonneville project was $1,361,080,300 of which $1,134,024,000 was for construction and $230,406,500 was for operation and maintenance. Scheduled completion for the entire project, including landscaping, visitor facilities, and modifications of the bypass facility for juvenile fish is 1996.

Bonneville Major Rehabilitation. Work began on the rehabilitation of the first powerhouse in June 1993. Phase I work, which includes replacement of the existing circuit breakers and ten transformers and rehabilitation of the switchyard, is scheduled to be completed in 1996. Phase I will cost an estimated $27,100,000. Phase II work was contracted in 1994 and is scheduled to be completed in 2002. Phase II work consists of replacing the windings of five generators and replacing turbine units one through ten in the first powerhouse. Phase II will cost an estimated $84,300,000.

Fish Bypass. Fish-passage facilities at the project include adult fish collection systems at the downstream sides of each powerhouse, three fish ladders (one on

Bradford Island, a second on Cascades Island, and a third on the Washington shore), fish locks on the Oregon shore side of the first powerhouse, and a bypass system at each powerhouse for downstream passage of fingerlings. At Bonneville Lock and Dam, new work during FY 94 included the design of the juvenile fish monitoring facilities, using funds provided by the Bonneville Power Administration. Also, improvements were made to the existing bypass system. The Bradford Island and Washington shore ladders have facilities where visitors can watch salmon and other fish migrating upstream. The salmon hatchery near the Oregon entrance provides partial mitigation for the loss of fall chinook caused by construction of the John Day Dam.

Hatchery. The Bonneville Hatchery on Tanner Creek is one of the oldest hatcheries in Oregon. The hatchery was built by the Corps of Engineers and is operated by the Oregon Department of Fish and Wildlife. A major expansion was completed in 1976 and provides for doubling the previous annual production of eight million salmon fingerlings. Operation of the hatchery is funded by the Corps of Engineers, Oregon Department of Fish and Wildlife, and National Marine Fisheries Service.

Recreation. Bonneville Lock and Dam and Lake Bonneville are in the Columbia River Gorge, one of the most scenic areas in the Pacific Northwest. The walls of the gorge rise 2,000 feet above Lake Bonneville in many places and can be seen from any of the 10 recreation areas around the reservoir including the Bradford Island Visitor Center at the dam, Eagle Creek Campground (U.S. Forest Service), Cascade Locks Park (Port of Cascade Locks), Koberg Beach, Memaloose and Mayer state parks, boat basins at Hood River and The Dalles, and two other areas. In 1994, about 2,550,700 recreation visits were made to Bonneville project areas.

Columbia River Treaty Fishing Access Sites, Washington and Oregon. Through treaties signed in the 1850s, Indian tribes in the Pacific Northwest reserved the right to access and fish at usual and accustomed fishing stations along the Columbia River. In the mid-1930s, fishing sites were submerged or destroyed during the construction of Bonneville Dam. In response to this, the United States entered into an agreement with Northwest Tribes. The Secretary of the Army was authorized to acquire lands and provide facilities in Oregon and Washington to replace Indian fishing grounds along the Columbia River "in-lieu" of those sites inundated by the Bonneville Dam. The Rivers and Harbors Act of 1945 provided authority and funding to implement the agreement. The Corps purchased and improved five sites totaling 40 acres. Construction began in 1952. By 1963, Indian fishing ground campsites had been completed at Big White Salmon, Little White Salmon, and Wind River in Washington; and Lone Pine and Cascade Locks in Oregon. Several years later, additional improvements were completed at all sites except one in Oregon. In 1974, modifications were completed to protect the Indian fishing sites from Lake Bonneville pool fluctuations due to peaking power production.

In 1988, Congress authorized the improvement and transfer of additional lands in order to provide equitable satisfaction of the United States' commitment to compensate for fishing site losses that occurred because of the construction of Bonneville Dam. Congress authorized through public law the implementation of a wide range of land management, transfer, acquisition and development actions required to improve fishing access. Improvements will include all-weather access roads, camping facilities, boat ramps, docks, sanitation, and fish cleaning facilities.

Thirty-one sites along the Columbia River will provide fishing access for Indian tribes who exercise treaty fishing rights on the river. Construction and rehabilitation of these facilities will greatly improve access to the Columbia River in Zone 6, an area comprised of Bonneville, The Dalles and John Day pools. This area is most heavily used for treaty fishing by four Pacific Northwest Indian Tribes: the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Indian Nation. Construction is due to begin in 1996. All 31 sites of the $67 million project are scheduled to be completed by the year 2000.

The Dalles Lock and Dam (Lake Celilo)

The Dalles is at the head of Lake Bonneville, 192 miles upstream from the mouth of the Columbia River and two miles east of the city of The Dalles. Construction began in 1952, and the project began operating five years later. The authorized primary project purposes are navigation and power generation. The project consists of a navigation lock, spillway, powerhouse, fish-passage facilities and the nonoverflow sections of the dam. Various recreational facilities are provided along Lake Celilo, the 24-mile-long impoundment.

Navigation. When Lake Celilo was first filled, it inundated Celilo Falls, an ancient and modern Indian fishing ground, as well as The Dalles-Celilo Canal, which had been used since 1915 to move river traffic past the tumultuous rapids in that reach of the Columbia. Now the lake provides slack-water navigation at a minimum depth of 15 feet in the main channel. The project's navigation lock, on the Washington shore, is 86 feet wide and 675 feet long. It has an 88-foot normal lift and provides a 15-foot minimum depth over the sills. Waterborne traffic through the lock in 1994 was 9,680,500 tons.

Power Generation. The powerhouse, with 1,807,000 kilowatts of installed generating capacity, has 22 main generators — 14 original units rated at 78,000 kilowatts and eight newer units rated at 86,000 kilowatts — and two auxiliary units of 13,500 kilowatts each. The auxiliary units also provide water to attract adult migrating fish to the fish ladders. All eight new units were generating power by the end of 1973. During 1994, the 22-unit powerplant generated 6.1 billion kilowatt-hours.

Through September 1994, the total cost of the project with 22 generators was $456,025,800 — $303,260,300 for construction and $152,765,500 for operation and maintenance. Since the project began operating in 1957, revenues of $363,894,600 from the sale of electricity have been deposited in the U.S. Treasury. Power revenues in fiscal year 1994 were $19,544,000. Construction and operating costs associated with the project's power facilities are to be repaid from those deposits by the Bonneville Power Administration.

Rehabilitation. Studies to rehabilitate the fishwater generators and generating units 1–14 are continuing. Three major unit overhauls are underway.

Fish Bypass. Facilities to move fish past the dam include two fish ladders, powerhouse collection systems and transportation channel, and the lock. Each ladder is about one-third mile long. Visitors can observe migrating fish at both ladders. As part of the Columbia River Juvenile Fish Mitigation Program, new work during fiscal year 1994 included design of the juvenile bypass system and continued testing of the prototype submerged extended fish screen.

Recreation. Facilities have been developed in a number of recreation areas, both in the immediate vicinity of the dam and upstream along the river. Seufert Visitors Center was completed and open to the public in fall of 1980. Seufert Park on the Oregon shore, operated by the Corps of Engineers, has a good view of the downstream side of the dam. A small project tourist train stops at Seufert Park. Visitors are given a guided tour of the powerhouse and dam and may stop at points of interest along the way.

Celilo Park on Lake Celilo, also operated by the Corps, has facilities for picnicking, fishing, swimming and boat launching. The park, which is near the site of the former Indian fishing grounds at Celilo Falls, is directly accessible from Interstate 84 about 12 miles east of The Dalles. Deschutes State Park, located on the eastern shore of the Deschutes River arm of Lake Celilo, was developed by Oregon state and has both day-use and camping areas. Boat launching and fishing are available at Heritage Landing on the west shore of the Deschutes River, also run by Oregon state. Five areas on the Washington shore of Lake Celilo also have been developed — Hess, Spearfish and Avery parks, managed by the Corps of Engineers; and Maryhill and Horsethief parks, operated by Washington State Parks Department. About 1,869,900 recreation visits were made to The Dalles project areas in 1994.

John Day Lock and Dam (Lake Umatilla)

John Day Dam is located at the head of Lake Celilo, 216 miles upstream from the mouth of the Columbia River and 24 miles upstream from The Dalles. The authorized primary project purposes are flood control, navigation and power generation. The project consists of a navigation lock, spillway, powerhouse, nonoverflow sections and fish-passage facilities on both shores. Construction began in 1958; the first power generator went into operation in 1968. Lake Umatilla, impounded by the dam, extends upstream about 76 miles to the foot of McNary Dam.

Navigation. Lake Umatilla provides slack water for navigation, with a minimum 15-foot depth in the main channel. The navigation lock, located on the Washington shore, is 86 feet wide, 669 feet long, and provides 15 feet of water depth over the sills. With a 113-foot maximum lift, it is one of the highest single-lift locks in the world. Lock traffic in 1994 was 9,148,500 tons.

Flood Control. Unlike the other dams on the Middle Columbia River, John Day Dam is also operated for flood control. When high runoff is forecast, the Lake Umatilla pool is lowered to provide space for control of about 500,000 acre-feet of floodwaters. Through September 1994, the project had prevented almost $7.4 million in flood damages.

Power Generation. The powerhouse, with 16 main generators of 135,000 kilowatt capacity each, has a total generating capacity of 2,160,000 kilowatts. The last of the 16 generators went on line in November 1971. Skeleton units to accommodate four additional generators have already been constructed in the powerhouse, providing for an eventual total capacity of 2,700,000 kilowatts. During 1994, 8.3 billion kilowatt hours were generated at the project. Since the powerplant began operating in 1968, $394,299,800 from the sale of power has been deposited in the U.S. Treasury. Power revenues in fiscal year 1994 were $37,806,600.

The total construction cost for the project through September 1994 was $718,873,100 — $512,400,200 for construction; $170,050,900 for operation and maintenance, and $36,422,000 for major rehabilitation.

Rehabilitation. The final major contract for rewinding of five generators continued and is scheduled for FY 1996 completion.

Fish Bypass. Fish-passage facilities are provided on both the Oregon and Washington shores. On the Oregon side of the project, an underwater fish viewing room is provided where visitors can see migrating fish pass at eye level and displays identifying species. Visitors can take a self-guided tour through the powerhouse.

Modifications to the downstream fish bypass facilities utilize screens to intercept fingerlings entering the turbine intakes and transport them downstream. The Columbia River Juvenile Fish Mitigation Program activities during fiscal year 1994 at the John Day Dam included completion of reconnaissance level mitigation studies. Planning and design for the potential drawdown of the reservoir to minimum operating pool continued. Improvements were made to the existing bypass system and design of the new fish monitoring facility was initiated.

Hatchery. Spring Creek Hatchery on the Washington shore of the Bonneville pool provides partial mitigation for loss of fall chinook caused by construction of John Day Dam. It is operated by the U.S. Fish and Wildlife Service. The balance of mitigation is provided by the Bonneville Hatchery, operated by the Oregon Department of Fish and Wildlife.

Recreation. In addition to the two visitor areas at John Day Dam, recreation is available at more than a dozen areas along Lake Umatilla. Most of the areas are managed by the Corps of Engineers, but include parks operated by local entities at Arlington, Boardman, Umatilla and Irrigon in

Oregon. Boardman Park, about 65 miles upstream from John Day Dam, and LePage Park on the John Day River arm of Lake Umatilla just above the dam, have swimming, picnicking and camping facilities. Philippi Park, further up the John Day arm, is a Corps-operated campground accessible only by boat. Recreation facilities for boating and camping are also available at Cliffs Park, Giles French Park, Quesnel Park, and Rock Creek Park. Day-use recreation areas at Railroad Island, Roosevelt Park, and Sundale Park have boat access ramps and picnic sites. About 3,615,200 recreation visits were made to John Day project areas in 1994.

McNary Lock and Dam (Lake Wallula)

McNary Dam is about 292 miles upstream from the mouth of the Columbia River and three miles east of the town of Umatilla. The authorized primary project purposes are navigation and power generation, but it also provides for irrigation and other incidental uses. The project includes a navigation lock, powerhouse, gate-controlled spillway, abutment sections and fish-passage facilities.

Construction began in 1947 and was substantially completed in 1953, when the navigation lock and the first power unit were put into service. The last power unit went on line in 1957.

Navigation. The single-lift navigation lock is 675 feet long and 86 feet wide, has a 92-foot maximum lift and provides a minimum water depth over the sills of 15 feet. Lake Wallula, behind the dam, is 64 miles long. It provides slack-water navigation upstream to the ports of Walla Walla, Pasco and Kennewick, to the Richland area on the Columbia River and to Ice Harbor Dam on the Snake River. In 1994, over 7.9 million tons of commerce passed through the navigation lock.

Power Generation. The powerhouse with 14 units of 70,000 kilowatts each has a generating capacity of 980,000 kilowatts. The plant generates over six billion kilowatt-hours of energy annually. A second powerhouse at McNary Dam was authorized for construction in the Water Resources Development Act of 1986 (PL 99-662) and deauthorized five years later in 1991. The federal cost of the McNary project through September 1994 was $326,293,105 for construction and $218,992,528 for operation and maintenance. The powerplant generated 6.812 billion kilowatt-hours of electricity.

Fish Bypass. There are two fish ladders, one on each shore. A powerhouse fish collection system is also provided. As part of the Columbia River Juvenile Fish Mitigation Program, the plan of improvement at McNary includes the following: submerged extended fish screens; gantry crane modifications; collection and bypass facilities; transport, holding and loading facilities; gate raise modifications; and an extended screen rehabilitation facility. Construction was completed on the prototype extended fish screens, collection, bypass, holding and loading facilities at McNary. The fish facility includes a public visitor center and is scheduled to open in 1995.

Recreation. On the Oregon side of Lake Wallula, upstream from the McNary Dam, recreation areas include McNary Beach, Hatrock State Park, Warehouse Beach, and Sand Station. More than 4,300,800 recreation visits were made to McNary Dam and recreation areas along Lake Wallula in 1994.

Flood Control Development

Three flood control projects have been completed in the Middle Columbia Basin. The Walla Walla River project, one of the existing projects, is under the jurisdiction of the Walla Walla District. The Umatilla River and Willow Creek projects are under Portland District's jurisdiction.

Existing Projects

Walla Walla River at Milton-Freewater

Levees were originally authorized for about seven miles along the Walla Walla River near Milton-Freewater by the Flood Control Act of 1941. Levees and revetments in the lower 5.3-mile reach from McCoy Bridge to the Milton powerplant were completed in 1952. After the floods in December 1964 and January 1965, those works required reconstruction which was completed in October 1967. Federal investment in the levees under various authorities has totaled $2,338,000. Costs to local interests have totaled $65,900. Clearing and channel improvement of the upper 1.7 miles under the original authorization has been postponed indefinitely pending renewal of interest by local sponsors.

Willow Creek Lake

The Willow Creek project was authorized by the Flood Control Act of 1965. The Willow Creek Dam is located immediately upstream from Heppner, Oregon. It is a 160-foot-high, roller compacted, concrete structure with ancillary features which include a center uncontrolled spillway, outlet works, minor flow works and diversion works. The reservoir has a gross storage capacity of 13,250 acre-feet. The project provides flood protection to the city of Heppner and downstream areas by controlling runoff from a drainage area of 96 square miles. In addition to

flood control, the project serves the purposes of irrigation, fish and wildlife enhancement, and recreation.

Construction of the dam was completed in July 1983. Through September 1994, the total cost of the project was $41,991,000 — $37,260,100 for construction and $4,730,900 for operation and maintenance.

Willow Creek Parks and Recreation District has leased recreation facilities at Willow Creek Lake. A courtesy handling dock was constructed by the recreation district utilizing Oregon State Marine Board funds. A playfield area below the dam has been leased to the city of Heppner. More than 72,300 recreation visits were made to Willow Creek Lake in 1994.

Umatilla River near Pendleton

Levees along the river through the city of Pendleton and in the state hospital area were authorized by Congress in 1936 and constructed in 1938. The Flood Control Act of 1950 authorized raising, rehabilitating and strengthening those levees in addition to building a new levee system in the Riverside area. Except for the Riverside area, that project was completed in 1960 and is now identified as Zone 1. No work has been accomplished in the Riverside area, and that portion of the project was deauthorized in 1986 (PL 99-662). Total federal costs in Zone 1 have been $393,000. A downstream extension of the levees was completed in 1960 under the provisions of Section 205 of the 1948 Flood Control Act, as amended.

Navigation Development

Current Study

Port of Morrow

The Port of Morrow is located on the Columbia River in the John Day pool near Boardman, Oregon. Under the continuing authority of section 107, a reconnaissance study is underway, considering the need for a turning basin to improve vessel handling and operations.